



JupyterHub Workshop 2016

Meeting Friday July 22nd, 2016

Quick Tips

- **Interact** for file sharing (URL based content sharing—makes it easier for users)
- **Ansible** for deployment
- Jess' compmodels deployment

<https://github.com/compmodels/jupyterhub-deploy>

Common Themes/Visions:

Possible Projects

- Find out how many users JupyterHub can support
- Supporting many (500+) users on single JupyterHub server
- Steep learning curve for git (Interact [mentioned in "Quick Tips"] as possible solution)
- Saving history when you exit the shell
- Integrating .ipynb files with Google Drive's "open with"
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Overall Notes

Brian Granger – Cal Poly SLO

“Deploying JupyterHub”

Small/medium groups of trusted users

Users are not developers

Ansible Based Deployment

- We have encoded this deployment scenario as a set of configurable ansible roles

[<https://github.com/jupyterhub/jupyterhub-deployteaching>]

- Used to teach data science at Cal Poly over multiple quarter, multiple instructors
- Can build a new server in <1 hour

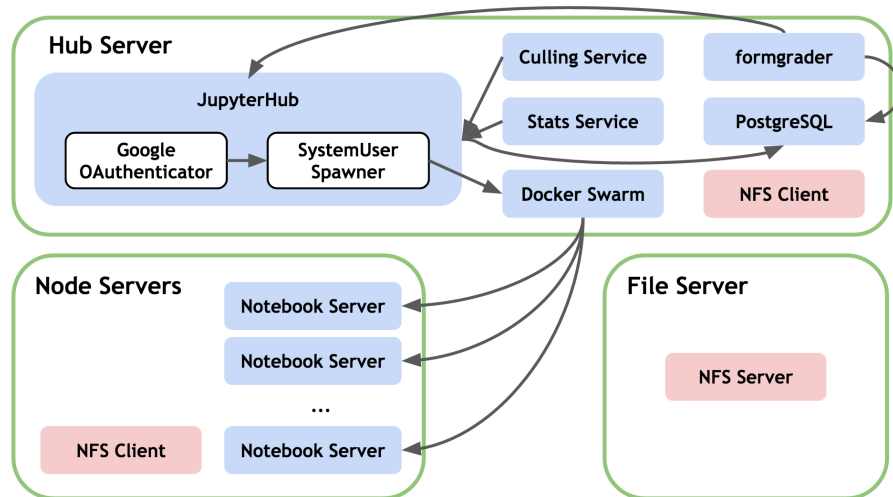
Install uses conda and some pip

Jess Hamrick – UC Berkeley

“Scaling Up JupyterHub for Education”

Scaling up to include more users (200+)

1. Isolating users with Docker
 - Isolated environment
2. Isolating 200+ users with Docker Swarm
3. Persistent files using NFS



4. Managing everything with Ansible and Docker Compose
 [DockerSpawner and SystemUserSpawner:
<https://github.com/jupyterhub/dockerspawner>]

Talking to JupyterHub:

1. Get an API token
2. Access the JupyterHub API using `http://<url>:8081/hub/api/users`
 - Headers: {'authorization': 'token <hub_api_token>'}
 - <https://github.com/jupyterhub/jupyterhub/tree/master/jupyterhub/apihandlers>

Getting a JupyterHub URL:

1. Run your service at:
 - `http://<service_url>:<service_port>`
2. Access the proxy API
 - POST `http://<url>:8001/api/routes/myservice`
 - Headers: {'authorization': 'token <proxy_api_token>'}
 - Body: {'target': 'http://<service_url>:<service_port>'}
3. Access your service at:
 - `http://<url>:8000/myservice`

Authenticating with JupyterHub:

1. Get an API token:

- JupyterHub token
- 2. Use the HubAuth service:
 - <http://jupyterhub.readthedocs.io/en/latest/api/services.auth.html>
- 3. Example use case: nbgrader formgrade

Ryan Lovett – UC Berkeley

“Foundations of Data Science” Course

Computer Science & Statistics Dept.

- New Data Science course with “connector” courses
- Connector classes used skills from main class for specific disciplines
- Didn’t want students to have to install too much software
- About 100 students (1st semester) grew to 480 students (2nd semester)
- There is a learning curve
 - Not all instructors or students familiar with git
- Needed a way to push notebooks and files to students
 - Interact** URL based content sharing
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